

Commonwealth of Kentucky
Division for Air Quality
PERMIT STATEMENT OF BASIS

DRAFT TITLE V PERMIT NO. V-03-052
CORNING, INCORPORATED
680 EAST OFFICE STREET, HARRODSBURG, KENTUCKY
AUGUST 16, 2005
BEN MARKIN, REVIEWER
SOURCE I.D. #: 21-167-00004
SOURCE A.I. #: 3143
ACTIVITY ID #: APE20030001

SOURCE DESCRIPTION:

An application for a renewal of the Title V Permit, V-98-030 for Corning, Inc., was received on July 22, 2003, and additional information on October 24, 2004. Corning, Inc. has updated its listing for all units at the facility with additions and modifications. The changes include addition of a dry vibrating magnetic filter for sand, alumina, boric acid and calcium carbonate silos and a bag chute-filling system. In addition, two identical 15 mmBtu/hr boilers and ten emergency generators that were not included in the initial Title V application.. The throughput for emission unit (EU 04 (tank 133)) has been increased as well as the EU 02 - loading of raw material into the melting furnace.

This source produces ophthalmic glass and advanced display products (ADP). Arsenic is used as a raw material for some of the glass production. All glass melting furnaces are equal to or less than 21 mmBtu/hour.

The facility is classified as a Title V major source of air pollution based on the potential to emit more than 100 tons per year (tpy) of particulate matter less than 10 microns (PM₁₀), total particulate matter (PT), nitrogen oxides (NO_x), sulfur dioxide (SO₂) and for the potential to emit more than 10 tons per year of arsenic and arsenic compounds. However, pursuant to Pursuant to 40 CFR 61.162(b)(2), uncontrolled total arsenic emission from the glass-melting furnace must be conveyed to a control device and reduced by 85 percent. The controlled emission from these processes is 5.1 tons per year.

The following is a list of significant emission units.

EU 01 Existing Operations for Raw Materials Handling consisting of:

Machine Point 1 Railcar raw material unloading consisting of two (2) sand silos, one (1) boric acid silo, one (1) alumina silo, one (1) calcium carbonate (CaCO₃) silo, and one railshed vacuum system equipped with building enclosure as control; construction commenced 1966.

Weigh Station 1 equipped with baghouse; construction commenced 1969.

Weigh Station 2 equipped with baghouse; construction commenced 1970.

- EU 02 New Operations for Raw Materials Handling consisting of:
- Raw Material Separator equipped with baghouse; construction commenced 1992.
- Day Bin Systems No. 1 equipped with baghouse; construction commenced 1993.
- Day Bin Systems No. 2 equipped with baghouse; construction commenced 1993.
- Mixer No. 1 equipped with baghouse; construction commenced 1992.
- Mixer No. 2 equipped with baghouse; construction commenced 1982.
- Primary Cullet Crusher equipped with baghouse; construction commenced 1983.
- Secondary Cullet Crusher equipped with baghouse; construction commenced 1983.
- Loading into ADP Tanks equipped with baghouse enclosure; construction commenced 1989.
- EU 03 Vacuum Systems consisting of:
- Central Vacuum System equipped with baghouse; construction commenced 1981.
- Cullet Crushing Vacuum System equipped with baghouse; construction commenced 1983.
- Melting Vacuum System equipped with baghouse; construction commenced 1983.
- EU 04 0.5 mmBtu/hr Glass Melting Tank (T133) equipped with baghouse; construction commenced 1986.
- EU 05 6 mmBtu/hr Glass Melting Tank (T138) equipped with baghouse, spray cooler and excess air burner; construction commenced 1993.
- EU 06 6.5 mmBtu/hr Glass Melting Tank (T139) equipped with baghouse, spray cooler and excess air burner; construction commenced 1989.
- EU 07 5 mmBtu/hr Glass Melting Tank (T1310) equipped with baghouse, spray cooler and excess air burner; construction commenced 1989.

- EU 08 5 mmBtu/hr Glass Melting Tank (T1311) equipped with baghouse, spray cooler and excess air burner; construction commenced 1995.
- EU 09 10.5 mmBtu/hr Indirect Heat Exchanger consisting of no control equipment; construction commenced 1987.
- EU 10 21 mmBtu/hr Glass Melting Tank (T135) equipped with baghouse, spray cooler and excess air burner; construction commenced 2000.
- EU 11 10.5 mmBtu/hr Glass Melting Tank (T136) equipped with baghouse, spray cooler and excess air burner; construction commenced 2000.
- EU 12 10.5 mmBtu/hr Glass Melting Tank (T137) equipped with baghouse, spray cooler and excess air burner; construction commenced 1999.
- EU 13 Four (4) Dry Vibratory Magnetic Filters (DVMF) for the silos and one (1) bag chute filling system equipped with central vacuum system (C09) for DVMF for sand and three (3) baghouses (C26) for DVMF for alumina, boric acid and calcium carbonate; construction commenced 2000.
- EU 14 Two (2) identical 15.21 Indirect Heat Exchangers consisting of no control equipment; construction commenced 2000.
- EU 15 Ten (10) Diesel Emergency Generators; constructed between 1979-2000.

COMMENTS:

UNITS AND THEIR APPLICABLE REGULATIONS:

EU 01 Existing Operations for Raw Materials Handling

401 KAR 61:020, Existing Process Operations, applicable to each affected facility or source, associated with a process operation, which is not subject to another emission standard with respect to particulate, commenced before July 2, 1975.

Pursuant to 401 KAR 61:020, Section 3(2), particulate matter emissions into the open air from any machine point shall not exceed $4.10P^{0.67}$ pounds per hour based on a three-hour average, where P is the average processing rate calculated weekly in tons per hour.

Pursuant to 401 KAR 61:020, Section 3, no person shall cause, suffer, allow or permit continuous emissions into the open air from the control device or stack associated with any affected facility. In addition, reasonable precautions shall be taken to prevent particulate matter from becoming airborne. Compliance with the particulate and opacity standard shall be demonstrated by proper operation of the baghouse, which in turn is ensured through the visual observation requirements as described in the monitoring requirements subsection. Observations and records, if applicable, shall be utilized to document compliance.

The permittee shall monitor the amount of raw material processed through each piece of materials handling equipment on a weekly basis. Visible emissions from each piece of equipment or operation described for this item or group shall be monitored daily during daylight hours to determine whether conditions appear to be normal or abnormal. If the emissions appear to be abnormal, the permittee must then comply with the deviation reporting. The permittee shall maintain records of the amount of raw material processed through each piece of materials handling equipment on a weekly basis.

EU 02 New Operations for Raw Materials Handling

EU 03 Vacuum Systems

401 KAR 59:010, New Process Operations, applicable to each affected facility or source, associated with a process operation, which is not subject to another emission standard with respect to particulate, commenced on or after July 2, 1975.

Pursuant to 401 KAR 59:010, Section 3(2), particulate matter emissions into the open air from any machine point shall not exceed $3.59P^{0.62}$ pounds per hour based on a three-hour average, where P is the average processing rate calculated weekly in tons per hour.

Pursuant to 401 KAR 59:010, Section 3, no person shall cause, suffer, allow or permit continuous emissions into the open air from the control device or stack associated with any affected facility. In addition, reasonable precautions shall be taken to prevent particulate matter from becoming airborne. Compliance with the particulate and opacity standard shall be demonstrated by proper operation of the baghouse, which in turn is ensured through the visual observation requirements as described in the monitoring requirements subsection. Observations and records, if applicable, shall be utilized to document compliance.

The permittee shall monitor the amount of raw material processed through each piece of the filters on a weekly basis. Visible emissions from each piece of equipment or operation described for this item or group shall be monitored daily during daylight hours to determine whether conditions appear to be normal or abnormal. If the emissions appear to be abnormal, the permittee must then comply with the deviation reporting. The permittee shall maintain records of the amount of raw material processed through each piece of the filters on a weekly basis.

EU 04 0.5 mmBtu/hr Glass Melting Tank (T133)

401 KAR 59:010, New Process Operations, applicable to each affected facility or source, associated with a process operation, which is not subject to another emission standard with respect to particulate, commenced on or after July 2, 1975.

401 KAR 57:002, Section 3 (1), incorporating by reference 40 CFR 61, Subpart N, National Emission Standard for Inorganic Arsenic Emissions from Glass Manufacturing Plants.

Glass melting tank 133 is an experimental melting tank, which currently only has two operating scenarios, as seen below.

SCENARIO 1: G Glass

This operating scenario corresponds to total production of arsenic free glass.

SCENARIO 2: F/G Glass

This operating scenario corresponds to total glass production that produces arsenic emissions < 0.4 Mg/yr.

To demonstrate compliance for arsenic limitation, the elemental arsenic addition to the glass melting tank shall be less than 1.0 Mg during any consecutive twelve (12) month period, pursuant to 40 CFR 61.164(c).

In the future, the permittee proposes to use the experimental melting tank to conduct single runs of new glass without controls, based on ingredient changes made to suit customer demands.

To demonstrate compliance for arsenic limitation, the elemental arsenic addition to the glass melting tank shall be less than 1.0 Mg during any consecutive twelve (12) month period, pursuant to 40 CFR 61.164(c).

Pursuant to 401 KAR 59:010, Section 3(2), particulate matter emissions into the open air from any machine point shall not exceed $3.59P^{0.62}$ pounds per hour based on a three-hour average, where P is the average processing rate calculated weekly in tons per hour.

Pursuant to 401 KAR 59:010, Section 3, no person shall cause, suffer, allow or permit continuous emissions into the open air from the control device or stack associated with any affected facility. In addition, reasonable precautions shall be taken to prevent particulate matter from becoming airborne. Compliance with the particulate and opacity standard shall be demonstrated by proper operation of the baghouse, which in turn is ensured through the visual observation requirements as described in the monitoring requirements subsection. Observations and records, if applicable, shall be utilized to document compliance.

The permittee shall monitor the amount of raw material processed through each glass melting tank on a weekly basis. Visible emissions from each piece of equipment or operation described for this item or group shall be monitored daily during daylight hours to determine whether conditions appear to be normal or abnormal. If the emissions appear to be abnormal, the permittee must then comply with the deviation reporting. The permittee shall maintain records of the amount of raw material processed through each piece of the filters on a weekly basis.

<u>EU 05</u>	<u>6 mmBtu/hr Glass Melting Tank (T138)</u>
<u>EU 06</u>	<u>6.5 mmBtu/hr Glass Melting Tank (T139)</u>
<u>EU 07</u>	<u>5 mmBtu/hr Glass Melting Tank (T1310)</u>
<u>EU 08</u>	<u>5 mmBtu/hr Glass Melting Tank (T1311)</u>
<u>EU 10</u>	<u>21 mmBtu/hr Glass Melting Tank (T135)</u>
<u>EU 11</u>	<u>10.5 mmBtu/hr Glass Melting Tank (T136)</u>
<u>EU 12</u>	<u>10.5 mmBtu/hr Glass Melting Tank (T137)</u>

401 KAR 57:002, Section 3 (l), incorporating by reference 40 CFR 61, Subpart N, National Emission Standard for Inorganic Arsenic Emissions from Glass Manufacturing Plants.

401 KAR 60:005, Section 3(ff), incorporating by reference 40 CFR 60, Subpart CC, Standards of Performance for Glass Manufacturing Plants.

ALTERNATE SCENARIO:

The following has been established as alternating operating scenarios by the Division based on information supplied with the application and during the application review process. The terms and conditions of each alternate operating scenario have been developed to ensure compliance with the applicable regulations. The permittee, when making a change from one operating scenario to another, shall record contemporaneously in a log at the permitted facility a record of the scenario under which the facility is operating. The permit shield, as provided in Section G, Condition (a) 15, shall extend to each alternate operating scenario set forth in this Section. All conditions not specified under an alternate operating scenario shall remain unchanged from their permit values or requirements.

Each glass-melting tank has the following three (3) operating scenarios:

SCENARIO 1: F Glass

This operating scenario corresponds to total glass production that produces arsenic emissions > 0.4 Mg/yr.

SCENARIO 2: F/G Glass

This operating scenario corresponds to total glass production that produces arsenic emissions < 0.4 Mg/yr.

SCENARIO 3: G Glass

This operating scenario corresponds to production of arsenic free glass.

Pursuant to 40 CFR 61.162(b)(2), uncontrolled total arsenic emission from the glass-melting furnace shall be conveyed to a control device and reduced by 85 percent.

Pursuant to 40 CFR 60.292, emissions of particulate matter shall not exceed 0.5 g/kg (1.0 lb/ton) of glass produced based on a three hours average.

<u>EU 09</u>	<u>10.5 mmBtu/hr Indirect Heat Exchanger</u>
<u>EU 14</u>	<u>Two (2) identical 15.21 mmBtu/hr Indirect Heat Exchangers</u>

401 KAR 59:015, New Indirect Heat Exchangers, applicable to an emissions unit with a capacity of less than 250 mmBtu/hour, which commenced on or after April 9, 1972.

401 KAR 60:005, incorporating by reference 40 CFR 60, Subpart Dc, Standards of performance for small industrial-commercial-institutional steam generating units, for units less than or equal to 100 mmBtu/hour but greater than or equal to 10 mmBtu/hour commenced after June 9, 1989 (*applicable to emission unit 14 only*).

Pursuant to 401 KAR 59:015, Section 4, allowable particulate matter emissions from emissions units 09 and 14 shall not exceed .40 lbs/mmBtu, each based on a three hour average. Pursuant to 401 KAR 59:015, Section 5, sulfur dioxide emissions from emission units 09 and 14 shall not exceed 1.68 lbs/mmBtu, each based on a twenty-four hour average. Pursuant to 401 KAR 59:015, Section 4, neither boiler stack shall have emissions equal to or greater 20% opacity based on a six-minute average, except that a maximum of 40% opacity based on a six minute average, shall be permissible for not more than 6 consecutive minutes in any consecutive 60 minutes during cleaning the fire-box or blowing soot.

These units are considered to be in compliance with the allowable particulate matter, opacity, and sulfur dioxide limitations while burning natural gas.

EU 13 Four (4) Dry Vibratory Magnetic Filters (DVMF)

401 KAR 59:010, New Process Operations, applicable to each affected facility or source, associated with a process operation, which is not subject to another emission standard with respect to particulate, commenced on or after July 2, 1975.

Pursuant to 401 KAR 59:010, Section 3(2), particulate matter emissions into the open air from any machine point shall not exceed $3.59P^{0.62}$ pounds per hour based on a three-hour average, where P is the average processing rate calculated weekly in tons per hour.

Pursuant to 401 KAR 59:010, Section 3(1), no person shall cause, suffer, allow or permit continuous emissions into the open air from a control device or stack associated with any affected facility which is equal to or greater than twenty (20) percent opacity.

Pursuant to 401 KAR 59:010, Section 3, no person shall cause, suffer, allow or permit continuous emissions into the open air from the control device or stack associated with any affected facility. In addition, reasonable precautions shall be taken to prevent particulate matter from becoming airborne. Compliance with the particulate and opacity standard shall be demonstrated by proper operation of the baghouse, which in turn is ensured through the visual observation requirements as described in the monitoring requirements subsection.

Observations and records, if applicable, shall be utilized to document compliance.

The permittee shall monitor the amount of raw material processed through each of the filters on a weekly basis. Visible emissions from each piece of equipment or operation described for this item or group shall be monitored daily during daylight hours to determine whether conditions appear to be normal or abnormal. If the emissions appear to be abnormal, the permittee must then comply with the deviation reporting. The permittee shall maintain records of the amount of raw material processed through each piece of the filters on a weekly basis.

EU 15 Four (4) Diesel Emergency Generators

401 KAR 52:020, Title V Permit general requirements

15a (76) Diesel Emergency Generator No. 1 (400 EkW or 587 bhp)

15b (77) Diesel Emergency Generator No. 2 (600 EkW or 896 bhp)

15c (78) Diesel Emergency Generator No. 3 (400 EkW or 896 bhp)

15d (79) Diesel Emergency Generator No. 4 (100 EkW or 166 bhp)

Pursuant to 401 KAR 52:020, Section 10, the permittee shall limit the hours of operation of each generator to 250 hour per year. The Permittee shall monitor, compile and maintain records the amount of fuel oil consumed by the Generators on a monthly basis. The Permittee shall monitor, compile and maintain records of the hours of operation of the each Generator on a monthly basis.

EU 16 Six (6) Diesel Emergency Generators

401 KAR 52:020, Title V Permit general requirements

15e (64) Diesel Emergency Generator for fire pump house (500 hp)

15f (60) Diesel Emergency Generator (300 EkW, 450 hp)

15g (61) Diesel Emergency Generator (300 EkW, 450 hp)

15h (62) Diesel Emergency Generator (300 EkW, 450 hp)

15i (63) Diesel Emergency Generator (155 EkW, 230 hp)

15j (84) Diesel Emergency Generator (400 EkW)

Pursuant to 401 KAR 52:020, Section 10, the permittee shall limit the hours of operation of each generator to 500 hours per year. The Permittee shall monitor, compile and maintain records the amount of fuel oil consumed by the Generators on a monthly basis. The Permittee shall monitor, compile and maintain records of the hours of operation of the each Generator on a monthly basis.

INSIGNIFICANT ACTIVITIES

The following listed activities have been determined to be insignificant activities for this source pursuant to 401 KAR 52:020, Section 6. While these activities are designated as insignificant the permittee must comply with the applicable regulation and some minimal level of periodic monitoring may be necessary. Process and emission control equipment at each insignificant activity subject to a general applicable regulation shall be inspected monthly and qualitative visible emission evaluation made. The results of the inspections and observations shall be recorded in a log, noting color, duration, density (heavy or light), cause and any conservative actions taken for any abnormal visible emissions.

1. (2) Sand silo equipped with baghouse and Raw material unloading & storage
2. (03a) Sand separator DVMF equipped with baghouse
2. (14) Small hood weigh scales equipped with baghouse
4. (43) Maintenance paints, 208 gallons/year
5. (44) Degreasing units using Safety Kleen (0.1 gph)
6. (45) Paint booth, drying booth, and curing oven (0.02 gph)
7. (46) Sand blaster equipped with baghouse (0.006 tph)
8. (47) Sand blaster equipped with baghouse (0.002 tph)
9. (48) Sand blaster equipped with baghouse (0.006 tph)
10. (49) Wood cutting & shaping equipped with baghouse
11. (50) Three laboratory hoods
12. (52) Brick drilling and cutting equipped with baghouse (0.075 tph)
13. (53) Spray coater (0.0002 tph) (Aluminum Oxide Coating) equipped with a scrubber
14. (54) Natural gas fired excess air burner (2.75 mmBtu/hr)
15. (57) Nine natural gas/propane forced comfort heaters (5 mmBtu/hr each)
16. (55) Four fuel oil storage tanks
17. (66) Bag collection system
18. (56) Arsenic acid storage tank (15,200 gallons capacity)
19. (82) Platinum shop Grit/Rokide room
20. (80) Machine shop equipped with a baghouse
21. (81) 135 Chip scoring process equipped with a baghouse

TESTING AND COMPLIANCE REQUIREMENTS FOR RAW MATERIAL USAGE:

1. Particulate, arsenic and visible emissions as measured by applicable reference methods, or an equivalent or alternative method specified in 40 C.F.R. Chapter I, or by a test method specified in the state implementation plan shall not exceed the respective limitations specified herein.
2. Performance testing for arsenic:
 - a) The permittee shall conduct an emission test as described in 40 CFR 61:164(e) on each control device to demonstrate compliance with the percent reduction requirements of inorganic arsenic emissions while operating all glass melting tanks associated with each control device being tested, by the start of the fourth year of this permit for all melting tanks.
 - b) The permittee shall determine the opacity and temperature value following the procedure as described in 40 CFR 61.163(c) during the emission test.

3. Performance testing for particulate matter:
The permittee shall conduct a performance using U.S. EPA approved test method to demonstrate compliance with the particulate emission standard while operating all glass melting tanks associated with each control device being tested, by the start of the fourth year of this permit for all melting tanks.
4. Performance testing for NO_x:
The permittee shall conduct at least one performance U.S. EPA approved test method for nitrogen oxides by the start of the fourth year of this permit for all melting tanks.
5. 401 KAR 63:020; Potentially hazardous matter or toxic substances, applicable to each affected facility, which emits or may emit potentially hazardous matter or toxic substances. The permittee proposed the usage of raw material, which can generate hydrogen bromide. The alternate operating scenarios submitted by permittee as an attachment to this document dated June 22, 2005 has been established by the Division based on information supplied with the application, during the application review process. The terms and conditions of each alternate operating scenario have been developed to ensure compliance with the applicable regulations. The permittee, when making a change from one operating scenario to another, shall record contemporaneously in a log at the permitted facility a record of the scenario under which the facility is operating.

The permit shield, as provided in Section G, Condition (a) 16, shall extend to each alternate operating scenario set forth in this Section. All conditions not specified under an alternate operating scenario shall remain unchanged from their permit values or requirements. Source wide hazardous air pollutants (HAP) shall not exceed 10 tons for single HAP, and 25 tons for combined HAPs per any twelve (12) consecutive months.

Compliance Demonstration Method:

The source is in compliance with 401 KAR 63:020 based on the emission rates of toxics given in the application submitted by the source. If the source alters process rates, material formulations, or any other factor that would result in an increase of toxic emissions or the addition of toxic emissions not previously evaluated by the Division, the source shall submit the appropriate application forms pursuant to 401 KAR 52:020, Section 3(1)(a), along with modeling to show that the facility will remain in compliance with 401 KAR 63:020.

EMISSIONS AND OPERATING CAPS DESCRIPTIONS:

Source wide hazardous air pollutants (HAP) shall not exceed 10 tons for single HAP, and 25 tons for combined HAPs per any twelve (12) consecutive months total.

OPERATIONAL FLEXIBILITY:

See Alternate Scenario Above

CREDIBLE EVIDENCE:

This permit contains provisions, which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.